Amendments to the Claims:

1. (Currently amended) A ~~transgenic~~ ~~Transgenic~~ non-human animal~~,~~ ~~preferably a knock-in mouse, having~~ comprising a missense mutation in the α4- or β2-subunit of the neuronal nicotinic acetylcholine receptor (nAChr).

2. (Currently amended) The animal ~~Animal~~ of claim 1, ~~having the~~ wherein said ~~the~~ missense mutation is V287L or V287M in the gene ~~for~~ encoding ~~the~~ said β2-subunit of said nAChr receptor.

3. (Currently amended) The animal ~~Animal~~ of claim 1, ~~having the~~ wherein said ~~the~~ missense mutation is selected from the group consisting of 259-260ins, S252L, 766ins3 ~~or~~ and T265I and said mutation is in said α4-subunit of ~~the~~ said nAChr receptor.

4. (Currently amended) The animal ~~Animal of any one of claims~~ claim 1 ~~to 3 containing~~, wherein said animal is homozygous for said ~~the~~ missense mutation ~~homozygously~~.

5. (Currently amended) The animal ~~Animal of any one~~ of ~~claims~~ claim 1 ~~to 3~~ ~~containing~~, wherein said animal is heterozygous for said ~~the~~ missense mutation ~~heterozygously~~.

6. (Currently amended) A targeting ~~Targeting~~ vector ~~containing~~ comprising ~~the following components operatively linked: the~~ a ~~genomic and/or cDNA~~ nucleic acid sequence ~~for~~ encoding a subunit of ~~the, preferably~~ a human or murine~~,~~ nicotinic acetylcholine receptor (nAChr) having a missense mutation in the α4- or β2-subunit, or a part of said subunit, wherein said part ~~has~~ comprises at least ~~the~~ said missense mutation in the α4- or β2-subunit operably linked to a selectable marker gene~~, and~~

~~optionally 2 recognition sequences for a recombinase, which flank the marker gene.~~

7. (Currently amended) The targeting ~~Targeting~~ vector of claim 6, wherein the selectable marker is an antibiotic resistance gene.

8. (Currently amended) The targeting ~~Targeting~~ vector of claim 6 ~~or 7~~, wherein said vector further comprises ~~recognition sequences~~ two ~~2~~ recognition sequences for a recombinase that~~, which~~ flank the marker gene ~~are each loxP~~.

9. (Currently amended) The targeting ~~Targeting~~ vector of claim ~~one or more of claims~~ 6 ~~to 8,~~ wherein the β2-subunit ~~has the~~ comprises a ~~missense mutation~~ V287L or V287M missense mutation.

10. (Currently amended) The targeting ~~Targeting~~ vector of ~~one or more of claims~~ claim 6 ~~to 8,~~ wherein the α4-subunit has ~~the~~ a missense mutation selected from the group consisting of 259-260ins, S252L, 766ins3 or T265I.

11. (Currently amended) A stem ~~Stem~~ cell~~, preferably murine embryonic stem cell, containing~~ comprising a vector of claim ~~one or more of claims~~ 6 ~~to 10~~.

12. (Currently amended) A screening ~~Screening~~ method for the identification of compounds for the treatment of the human epilepsy syndrome~~, particularly familiar nocturnal frontal lobe epilepsy (ADNFLE),~~ comprising the following steps:

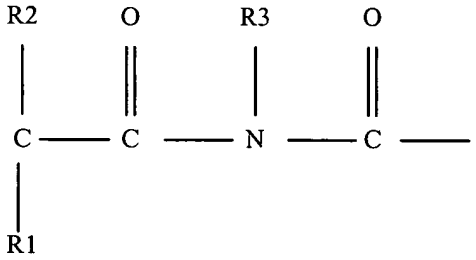
a) providing an animal ~~of any one~~ of ~~claims~~ claim 1 ~~to 5~~ and ~~providing~~ a test compound~~compounds~~,

b) administering said ~~administration of the~~ test compound ~~compounds~~ to ~~the~~ said animal,

c) selecting ~~selection of~~ a test compound ~~resulting in~~ that ~~alleviation or elimination of the~~ alleviates or eliminates symptoms of ~~the~~ an epilepsy syndrome in ~~the~~ said animal, ~~and~~

~~d) optionally repeating the steps a) to c) with a suitably modified form of the test compound chosen in c).~~

13. (Currently amended) The screening ~~Screening~~ method of claim 12, wherein ~~the~~ said test compound is ~~compounds~~ ~~are~~ selected from the group consisting of ~~following groups~~ barbiturates, oxazolidindiones, ~~and~~ succinimides, derivatives of benzodiazepines, sultiam, Carbamazepin, valproic acid and compounds ~~further groups having the following grouping as a group~~ comprising ~~as a common structural element~~ formula I:




wherein $R^1$ and $R^2$ are alkyl or aryl residues and $R^3$ is H or an alkyl residue,

~~or derivatives of benzodiazepines, sultiam, Carbamazepin and valproic acid~~.

14. (Currently amended) A compound ~~Compound~~ for the treatment of ~~the~~ a human epilepsy syndrome~~, preferably of ADNFLE, which has been~~ identified ~~by~~ according to the method of claim 12 ~~or 13~~.

15. (Currently amended) ~~A~~ pharmaceutical ~~Pharmaceutical~~ composition ~~having~~ comprising a therapeutically effective dose of ~~one or more~~ a compound identified according to the method of claim 12 in ~~compounds of one or more of claims 12 to 14 and~~ a pharmaceutically acceptable carrier.

16. (Currently amended) ~~Use of the composition of claim 15 for the treatment of the~~ A method for treating a human epilepsy syndrome~~, preferably ADNFLE~~ by administering to a patient a composition identified according to the method of claim 15.

17. (New) The transgenic non-human animal of claim 1, wherein said animal is a knock-in mouse.

18. (New) The targeting vector of claim 6, wherein said nucleic acid is a genomic and/or cDNA nucleic acid sequence.

19. (New) The screening method of claim 12, where in said human epilepsy syndrome is familial autosomal dominant nocturnal frontal lobe epilepsy (ADNFLE).

20. (New) The screening method of claim 12, wherein said method further comprises:

d) repeating steps a) to c) with a modified form of the test compound chosen in c).